

Application No. 10/731,741  
Response dated June 21, 2006  
Reply to Office action of March 28, 2006

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (currently amended) An *in vitro* system comprising a cell preparation comprising OP9 stromal cells that have been modified to express a Notch ligand that supports T cell lymphopoiesis but does not support B cell lymphopoiesis, wherein the Notch ligand is Delta-like-1 or Delta-like-4 and wherein the T cells produced are ~~not~~ TCR- $\alpha\beta^+$ CD4 $^+$ CD8 $^-$  T cells, comprise T cells of one or more of the following lineages:

(a) CD4 $^-$  CD8 $^-$  CD25 $^+$  CD44 $^{+/-}$  double negative (DN) T cells;

(b) TCR- $\alpha\beta^+$  CD4 $^+$ CD8 $^+$  double positive (DP) T cells;

(c) TCR- $\alpha\beta^+$  CD4 $^-$ CD8 $^+$  T cells; and/or

(d) TCR- $\gamma\delta^+$  T cells.

2. (previously presented) An *in vitro* system of claim 1 wherein the Notch ligand induces T cell lineage commitment and differentiation, stage-specific progenitor expansion, TCR gene rearrangement, and T cell differentiation by hematopoietic progenitors and embryonic stem cells in the absence of the thymus.

3. (canceled)

4. (previously presented) An *in vitro* system of claim 1 that induces TCR V(D)J rearrangement, and T cell differentiation by hematopoietic progenitor cells or embryonic stem cells.

5. (cancelled).

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6. (cancelled).
7. (canceled).
8. (previously presented) An *in vitro* system as claimed in claim 1 wherein the cells lack functional macrophage colony stimulating factor (M-CSF).
9. (canceled).
10. (previously presented) An *in vitro* system as claimed in claim 1 wherein the OP9 cells comprise a Delta-like-1 nucleic acid sequence shown in SEQ ID NO:8 or SEQ ID NO:9.
11. (previously presented) An *in vitro* system as claimed in claim 1 wherein the OP9 cells comprise a Delta-like-4 nucleic acid sequence shown in SEQ ID NO:10 or SEQ ID NO:11.
12. (previously presented) A method of forming cells of the T cell lineage comprising culturing stem cells or progenitor cells that are capable of differentiating into cells of the T cell lineage with an *in vitro* system of claim 1 to form cells of the T cell lineage.
13. (original) A method according to claim 12 wherein the cells that are capable of differentiating into cells of the T lineage are selected from hematopoietic progenitor cells, hematopoietic stem cells and embryonic stem cells.
14. (original) A method of claim 12 further comprising separating the cells of the T cell lineage to obtain populations of cells largely consisting of one or more types of cells of the T cell lineage.

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15. (original) A method of claim 14 wherein the population of cells that is separated comprises immature T cells.

16. (original) A method of claim 14 further comprising inducing the immature T cells to form mature T cells.

17. (original) A method of claim 14 wherein the population of cells are formulated in a pharmaceutically acceptable carrier, auxiliary or excipient.

18. (canceled).

19. (canceled).

20. (canceled).

21. (canceled).

22. (previously presented) A method for expanding cells of the T cell lineage comprising (a) culturing stem cells or progenitor cells capable of differentiating into cells of the T cell lineage with a system of claim 1; and (b) isolating increased numbers of cells of the T cell lineage.

23. (canceled).

24. (previously presented) A method as claimed in claim 22 wherein the number of cells is increased by at least about 10 to 15 fold.

25 - 49 (canceled).